

Whitworth Community High School

Flood Risk Assessment & Drainage Strategy

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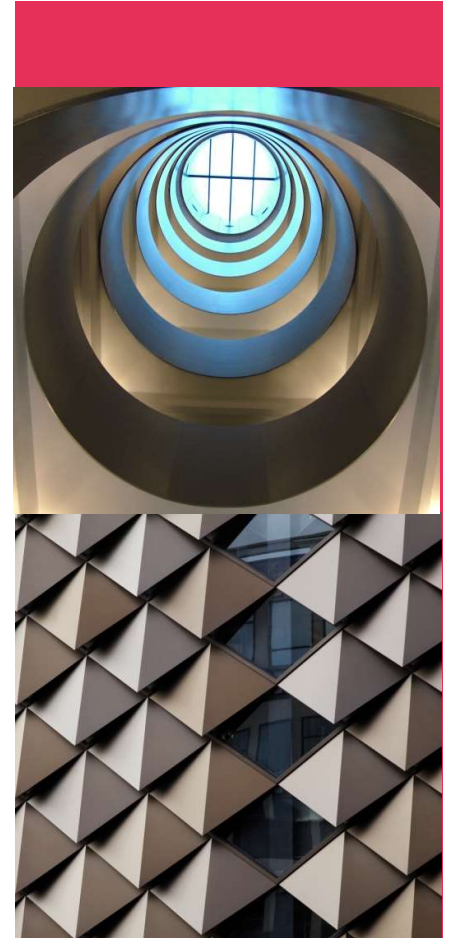
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4th Floor, The Royals, 353 Altrincham Road, Sharston, M22 4BJ


Site Address: Hall Fold Whitworth Rochdale OL 12 8TS



Control Sheet

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<i>Author</i>	<i>Signature</i>	<i>Date</i>
Marta Wolska MEng (Hons) Senior Civil Engineer		29 April 2021


<i>Reviewed</i>	<i>Signature</i>	<i>Date</i>
Andy Losty MEng Project Engineer		29 April 2021

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1.0 Introduction

1.1 Project Background

- 1.1.1 Curtins was appointed by Wates Construction Limited to provide a Flood Risk Assessment (FRA) and Drainage Strategy for the proposed development at Whitworth Community High School, Hall Fold Whitworth, Rochdale OL12 8TS.
- 1.1.2 The report provides information on the nature of flood risk at the site and follows Government guidance regarding development and flood risk.
- 1.1.3 The report is based on currently available information and preliminary discussions.
- 1.1.4 Proposals contained or forming part of this report represent the design intent and may be subject to alteration or adjustment in completing the detailed design for this project. Where such adjustments are undertaken as part of the detailed design and are deemed a material deviation from the intent contained in this document, prior approval shall be obtained from the relevant authority in advance of commencing such works.
- 1.1.5 Where the proposed works to which this report refers are undertaken more than twelve months following the issue of this report, Curtins shall reserve the right to re-validate the findings and conclusions by undertaking appropriate further investigations at no cost to Curtins.

1.2 Scope of Assessment

- 1.2.1 The assessment is to be undertaken in accordance with the standing advice and requirements of the Environment Agency (EA) for Flood Risk Assessments as outlined in the Communities and Local Governments Planning Policy Guidance to the National Planning Policy Framework (NPPF).
- 1.2.2 The assessment will:
 - Investigate all potential risks of flooding to the site,
 - Consider design proposals to mitigate any potential risk of flooding
 - Consider the environmental impact of the proposed development in relation to flooding
 - Consider foul & surface water drainage proposals for the proposed development.
- 1.2.3 The total development area is approximately 5.48 ha and following scrutiny of the Environment Agency flood maps it has been identified that it lies within Flood Zone 1. The site area is in excess of 1 Ha, and therefore a Flood Risk Assessment is required to support a planning application, to consider the management of surface water run-off.
- 1.2.4 In April 2015, the Government made changes to the National Planning Policy Framework which made Sustainable Urban Drainage Systems (SuDS) a material consideration in the determination of planning applications for 'major' developments.

- 1.2.5 A Drainage Strategy will therefore be required as part of the Planning Application for the development, as the site is considered to be 'major' development by the Town and Country Planning Order 2015.
- 1.2.6 This Flood Risk Assessment and Drainage Strategy reviews the following information:
- Environment Agency flood maps for rivers and sea flooding.
 - National Planning Policy Framework (NPPF)
 - UK Government Flood Warning Information Service maps for surface water flooding and reservoir flooding.
 - North West SuDS Pro-Forma
 - Lancashire and Blackpool Local Flood Risk Management Strategy- Draft October 2013
 - Defra Non-Statutory technical standards for sustainable drainage system.
 - Geotechnical and Geo-Environmental Desktop Study by Campbell Reith March 2021
 - Land Quality Statement by Campbell Reith March 2021
 - Groundsure maps
 - United Utilities Public Sewer Records Extract dated August 2020.
 - Topographical Survey by JLP Surveying dated August 2020
 - Surveyed outfall April 2014
 - GPR Survey by JLP Surveying dated Nov 20
 - CCTV survey Drain Doctor 14309 September 2020
 - Additional CCTV survey Drain Alert March 2021
- 1.2.7 The works involve the partial demolition and redevelopment of a school. This includes the erection of a new main school building of up to 3 storeys, reconfigured/relocated car parking, new grass pitches and landscaping.
- 1.2.8 The Proposed Site Layout is enclosed in *Appendix A*.

2.0 Existing Site Details

2.1 History and Current Use

- 2.1.1 The site is brownfield and comprises existing school buildings with the adjacent hard and soft landscape.
- 2.1.2 The site is located at Hall Fold Whitworth, Rochdale OL12 8TS, National Grid Reference 388072E, 417936 N.
- 2.1.3 The site is bounded by fields to the West and residential properties to all other boundaries. The vehicular access to the site is from Hall Street to the South of the site.

Figure 1: Aerial Photograph



2.2 Existing Watercourses and Other Waterbodies

- 2.2.1 The River Spodden (Main River) is running parallel to the North-East boundary
- 2.2.2 The Tong End Brook (Main River) is located near the Northern boundary and connects to the River Spodden in the North East.
- 2.2.3 Miller's Gutter runs near the southern boundary and crosses under the access road which leads up to the school building.
- 2.2.4 The Cowm Reservoir is located 522m to the North West of the site.
- 2.2.5 Spring Mill Reservoir and Prickshaw Brook are located 750m to the South West of the site.
- 2.2.6 The Groundsure Insight maps have been included in *Appendix B*.

2.3 Existing Drainage

Public Sewer

- 2.3.1 The public sewer records have been obtained for the development site, and are enclosed in *Appendix B*
- 2.3.2 The existing public sewer records indicate that there is no public sewer within the site.
- 2.3.3 There are public sewers outside the site boundary:
 - A 150mm diameter combined sewer in property 26 Hall Street located near the entrance to the site.
 - A 225mm diameter combined sewer in the footway parallel to Hall Street.
 - Foul public sewer within the adjacent Thor Drive and Orama Ave.
 - Public Surface water sewers within an adjacent residential area, which are connected to the River Spodden.

Private Drains

- 2.3.4 A GPR & CCTV survey of the site confirmed that there are various private foul and surface water drains surrounding the existing buildings.
 - The existing foul water drainage system runs from the North to the South. The CCTV survey ended on the edge of the soft landscape near the access road. The exact connection location to the public sewer has not been confirmed.
 - The surface water from the existing Sports Hall, adjacent external area, and northern car park discharges to River Spodden. The existing 225mm pipe, which is located within sports fields and carries surface water to the River Spodden has not been surveyed due to limited access to the sports

fields. The existing pipe should be cleaned, surveyed, and repaired if it is required, as it will be retained.

- The other existing buildings with the adjacent external area and southern car park discharge surface water to Millers Gutter.
- The north gully in the access road discharges surface water to Millers Gutter. Other gullies within the access road are connected to the drain which is running towards the junction with Hall Street, however, the CCTV survey did not confirm where it discharges to.

2.4 Topography

- 2.4.1 A topographical survey has been carried out to the proposed site and is enclosed in *Appendix C*.
- 2.4.2 In general, the site slopes from the West to the East.
- 2.4.3 The sports fields in the north of the site slope from the West 222.93m AOD to the East 219.08m AOD
- 2.4.4 The main school building, located within the middle part of the site, is at level 227.45m AOD. The two smaller buildings, on the East of the main building, step down to 223.9m AOD.
- 2.4.5 The southern car park slopes from the North (226.73m AOD) to the South (224.12m AOD) near the access road. The access road slopes towards the junction with Hall Street, which is at 219.28m AOD.
- 2.4.6 The western tarmac areas slope from the West (235.31m AOD) to the East (230.58m AOD)

2.5 Geology

- 2.5.1 The Desktop Study and Land Quality Statement reports were carried out by Campbell Reith in March 2021.
- 2.5.2 The Campbell Reith reports indicate the made ground is overlaid by sandy clay. The findings have been provided within figure 2 below.

Figure 2. Ground condition (Campbell Reith Land Quality Statement table 7.1)

Exploratory Hole	Response Zone (m bgl)	Response Zone Strata	
		Depth (m bgl)	Strata
WS02	1.0 – 4.0	1.0 – 1.2	Made Ground
		1.2 – 4.0	Slightly gravelly sandy clay
WS03	1.0 – 4.0	1.0 – 1.2	Made Ground
		1.2 – 4.0	Sandy gravelly clay
WS05	0.5 – 2.5	0.5 – 2.4	Made Ground
		2.4 – 2.5	Sandy gravelly clay
WS08	1.5 – 4.0	1.5 – 4.0	Sandy gravelly clay
WS10	1.0 – 3.0	1.0 – 1.2	Made Ground
		1.2 – 3.0	Sandy gravelly clay

2.5.3 In WS05 and WS07, groundwater was recorded within the Made Ground at shallow depth. This groundwater is considered to be perched water held within the Made Ground. The groundwater has been found at shallow depths during monitoring. The groundwater monitoring results have been summarised within figure 3.

Figure 3. Ground water results (Campbell Reith Land Quality Statement table 7.2)

Hole	Water Strikes				Standing Water Level During Monitoring			
	Struck		Rose to		Shallowest		Deepest	
	m bgl	m OD	m bgl	m OD	m bgl	m OD	m bgl	m OD
WS01	3.50	221.19	-	-	-	-	-	-
WS02	3.00	221.73	-	-	0.82	223.91	1.43	223.30
WS03	5.45	219.70	-	-	3.20	221.95	3.35	221.80
WS04	2.00	223.69	-	-	-	-	-	-
WS05	0.50	224.07	-	-	0.56	224.01	0.68	223.89
WS07	0.80	226.63	0.60	226.83	-	-	-	-
WS08	-	-	-	-	0.43	226.03	0.97	225.49
WS10	-	-	-	-	1.20	226.33	1.56	225.97

2.5.4 The borehole logs have been included in *Appendix D*.

2.5.5 The Campbell Reith reports indicate that the site is not situated within a Source Protection Zone.

2.5.6 The chemical analysis has identified the following key contamination issues at the site:

- Soils: localised elevated concentrations of PAH compounds within hardstanding subbase material. Asbestos in soils has not been detected.

- Groundwater: localised concentrations of metals and PAH compounds recorded marginally above generic assessment criteria.

2.5.7 As the boreholes and groundwater monitoring have been carried out not in close proximity to the proposed new building, further investigations are required. The additional boreholes and groundwater monitoring are currently being undertaken by Curtins, and the results have not been received to date.

3.0 Development and Flood Risk

National Planning Policy Framework (NPPF) and Planning Practice Guidance

3.1.1 In February 2019, the Department of Communities and Local Government published the National Planning Policy Framework document (NPPF) and the Planning Practice Guidance was published in March 2014 which provides guidance on how flood risk should be assessed during the planning and development process.

Table 1: (Extract from Planning Practice Guidance) Flood Zone Classifications

These Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's [Flood Map for Planning \(Rivers and Sea !\[\]\(0aff635c4179ba9e710b00f4b01d3b20_img.jpg\)](#)), available on the Environment Agency's web site, as indicated in the table below.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3)
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or Land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 2: (Extract from Planning Practice Guidance) Flood Risk Vulnerability Classification

<p>Essential Infrastructure</p> <ul style="list-style-type: none"> • Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood. • Wind turbines.
<p>Highly Vulnerable</p> <ul style="list-style-type: none"> • Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as ‘Essential Infrastructure’).
<p>More Vulnerable</p> <ul style="list-style-type: none"> • Hospitals • Residential institutions such as residential care homes, children’s homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill* and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Less Vulnerable

- Police, ambulance and fire stations which are **not** required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'More Vulnerable' class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.

Water-Compatible Development

- Flood control infrastructure.
- Water transmission infrastructure and pumping stations.
- Sewage transmission infrastructure and pumping stations.
- Sand and gravel working.
- Docks, marinas and wharves.
- Navigation facilities.
- Ministry of Defence defence installations.
- Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location.
- Water-based recreation (excluding sleeping accommodation).
- Lifeguard and coastguard stations.
- Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.
- Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

Table 3: (Extract from Planning Practice Guidance) Flood Risk Vulnerability and Flood Zone Compatibility

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	x	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	x	x	x	✓*

Key:

✓ Development is appropriate

x Development should not be permitted.

Notes to table 3:

- This table does not show the application of the Sequential Test which should be applied first to guide development to Flood Zone 1, then Zone 2, and then Zone 3; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and Exception Tests do not need to be applied to minor developments and changes of use, except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

* In Flood Zone 3b (functional floodplain) essential infrastructure that has to be there and has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

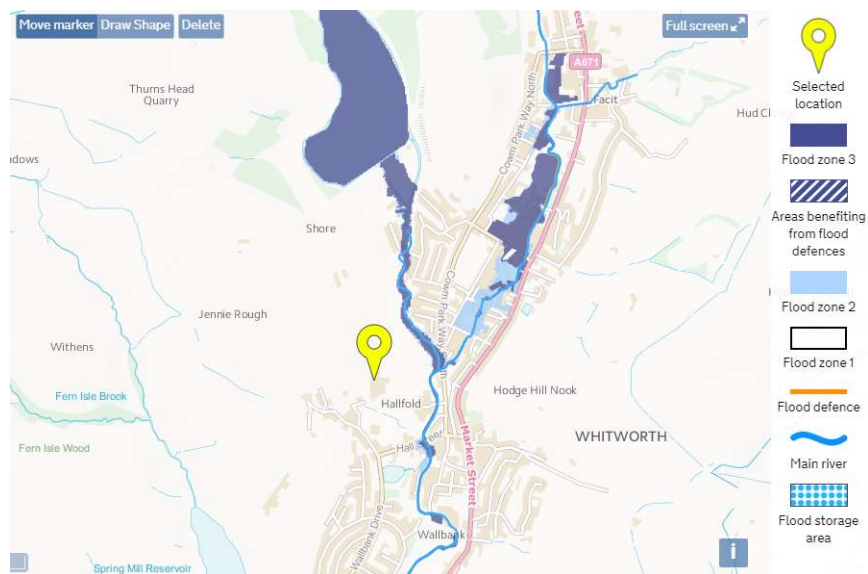
- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

3.2 Site Specific NPPF Flood Risk Categorisation

3.2.1 To assess the NPPF flood risk classification for the site, the first step was to inspect the UK Government web based 'Flood Map for Planning' which is used to inform the planning of a site's Flood Zone(s) and the probability of flooding from rivers or sea (not taking into account the presence of flood defences or climate change). However, the web based 'Long Term Flood Risk Assessment for Locations in England' should also be used to identify the long-term flood risks from rivers and seas, surface water and reservoirs.

3.2.2 The Flood Map for Planning is shown below in Figure 4, and it can be seen that the development site is located within an area classified as Flood Zone 1 (low probability of flooding from rivers or sea).

Figure 4: Flood Map for Planning (© Crown Copyright)



3.2.3 Further site-specific review of the flood risk to the site is provided in section 4.

3.3 Site Specific Flood Zone Compatibility

3.3.1 Based on Table 2, the proposals for the development site are likely to fall within the following category:

- More vulnerable – non-residential uses for educational establishments.

3.4 Sequential Test

3.4.1 Based on Table 3, the sequential test is not required for developments classified as more vulnerable within Zone 1.

4.0 Hydrological Assessment

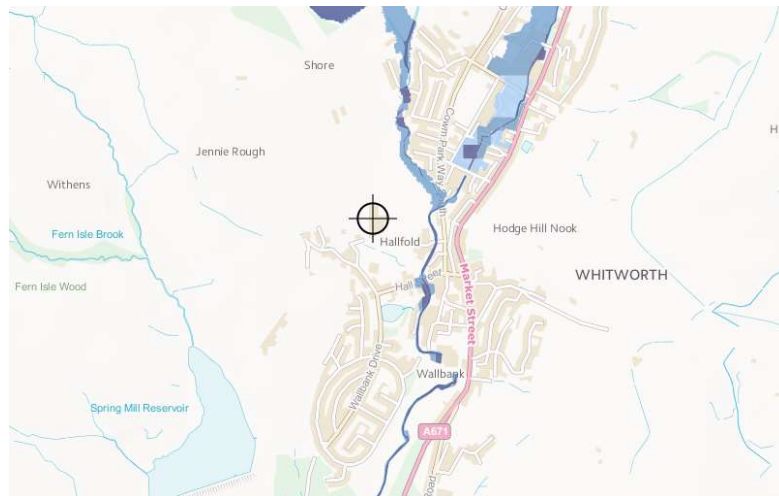
4.1 Sources of Flood Risk

4.1.1 This study assesses the risk from different types of flooding to the development and the risk of flooding from the development, taking into consideration climate change, as well as how flood risks should be managed. The approach to assessing flood risk at the development site was informed by the requirements of NPPF in conjunction with the client and Environment Agency requirements.

4.2 Fluvial Flooding (Rivers and Sea)

4.2.1 Flooding to the site from rivers and sea is indicated in Figure 5, taken from the UK Government's Long-Term Flood Risk Information.

Figure 5: Long Term Flood Risk Assessment Map – Flood Risk from Rivers or Sea (© Crown Copyright)



4.2.2 The detailed flood risk information taken from the UK Government Long Term Flood Risk Assessment website indicates that the area within the existing site is at 'Very Low' residual risk from fluvial flooding.

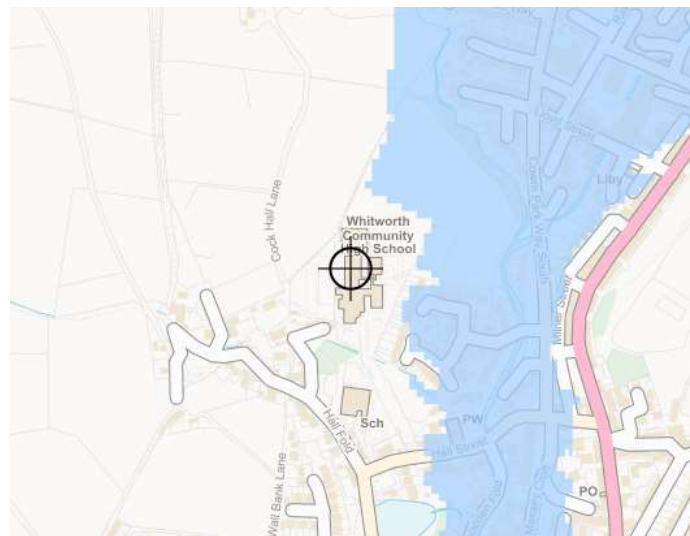
4.3 Tidal Flooding (Coastal or Estuarine)

4.3.1 There is currently no flood risk identified on the UK Government Long Term Flood Risk Assessment website for the site and it is therefore regarded to be at low risk from tidal flooding.

4.4 Reservoir Flooding

- 4.4.1 Reservoir flooding is extremely unlikely to happen and there has been no loss of life in the UK from reservoir flooding since 1925. The Environment Agency is the enforcement authority and ensures that reservoirs are inspected regularly, and essential safety work is carried out.
- 4.4.2 The Long-Term Flood Risk Assessment (Flood Risk from Reservoirs), Figure 6, map shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. Since this is a prediction of a worst-case scenario, it is very low risk that a reservoir flood would be this large.

Figure 6: Long Term Flood Risk Assessment Map – Flood Risk from Reservoirs (© Crown Copyright)



- 4.4.3 In case of reservoir flooding, the water will flood the sports fields in the North and North-East of the site. The proposed building will not be affected as the FFL is more than 2 m higher than sports fields.
- 4.4.4 Considering all the above the risk of flooding is very low.

4.5 Canal Flooding

- 4.5.1 There are no canals nearby, therefore there is no risk of flooding from canals.

4.6 Groundwater Flooding

- 4.6.1 As per point 2.5 of this report, groundwater was encountered at 0.4 mbgl. This suggested that shallow groundwater levels might be encountered onsite.
- 4.6.2 The Groundsure map included in *Appendix B* indicates that there is a low risk of groundwater flooding within site.

4.6.3 The development proposals do not include any below ground basement areas.

4.6.4 In general external ground levels across the site should fall away from the proposed buildings and ensure that the creation of low points is avoided (other than those used intentionally for drainage features) in order that in the unlikely event of groundwater flooding, the flood water is safely routed away from all buildings on site. Therefore the risk of groundwater flooding to the area is considered to be low.

4.7 Public Sewers/ Highway Drainage

4.7.1 There is no public sewer within the site or adjacent to site, therefore there is no risk of flooding from a public sewer.

4.8 Surface Water Flooding to the site

4.8.1 From the UK Government's Flood Risk from Surface Water (extent of flooding) map;

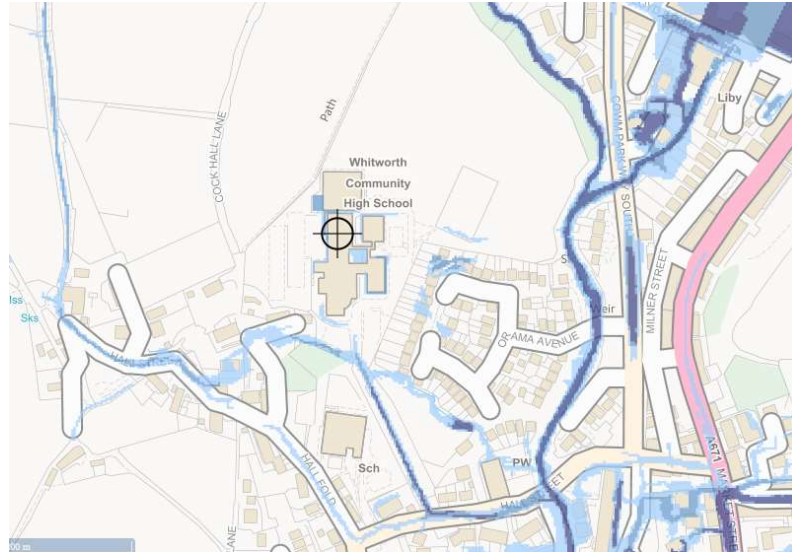
- Where a site is located in a dark blue shaded zone, this indicates that the site is at high risk of flooding, where flooding occurs as a result of rainfall with a greater than 1 in 30 (3.3%) chance in any given year.
- Where a site is located in a mid-blue shaded zone, this indicates that the site is at medium risk of flooding, where flooding occurs as a result of rainfall of between 1 in 100 (1%) and 1 in 30 (3.3%) chance in any given year.
- Where a site is located in a light blue shaded zone, this indicates that the site is at low risk of flooding, where flooding occurs as a result of rainfall of between 1 in 1000 (0.1%) and 1 in 100 (1%) chance in any given year.
- Where a site is located in a clear (unshaded) area; this indicates that the site is at very low risk of flooding, where flooding occurs as a result of rainfall with less than 1 in 1000 (0.1%) chance in any given year.

4.8.2 The UK Government's Flood Risk from Surface Water map indicates that the majority of the site is at very low risk of surface water flooding.

4.8.3 There are some small areas within the site that are shown to be at a low risk of surface water flooding. These areas correlate with drainage channels and valleys created for drainage.

4.8.4 It is assumed that the surface water drainage outside of the site boundary will be subject to the relevant landowners', regular drainage maintenance schedules.

Figure 7: Risk of Flooding from Surface Water - Extent of Flooding



4.8.5 Considering the above information, the risk of surface water flooding to the site is generally considered very low, with a localised region considered to be at low risk. As such, mitigation measures are proposed in Section 5 in order to account for the low risk of surface water flooding to the site and to ensure that the 'very low' risk can be maintained through development.

4.9 Surface Water Flooding from the site

4.9.1 Surface water flooding can be caused when rainwater during extreme rainfall events does not drain away through the normal drainage system and because of the existing hardstand surface can't soak into the ground. The private drainage might not have sufficient capacity causing flooding occurring, principally from manholes and gullies.

4.9.2 Developers are responsible for ensuring that new development does not increase the flood risk elsewhere. Where new development is proposed, the proposed surface water drainage network shall be designed to not flood for the critical 1 in 30-year storm event, and flood water generated up to the critical 1 in 100-year plus climate change storm event shall be constrained within areas on site so as not to cause damage to buildings, essential services or adjoining developments and services.

4.9.3 The development has the potential to increase flood risk where additional run-off from proposed roads, paved areas and building roofs are discharged freely into the downstream drainage network. The flood risk from the development has been mitigated, as the drainage has been designed in line with Lancashire County Council guidance. For the detailed drainage strategy refer to point 6.3.

4.9.4 An assessment of the proposed surface water flows is carried out within the drainage strategy within section 5 of this report.

4.10 Summary of Flood Risk

4.10.1 From the evidence collated and subsequent negotiations the main types of flooding that may apply to the proposed development site are as follows:

- Surface Water Flooding to the Site
- Surface Water Flooding from the Site

5.0 Mitigation

Surface Water Flooding to the site Mitigation

- 5.1.1 The UK Government Long Term Flood Risk Assessment surface water flood maps indicate that the site is at very low risk of surface water flooding.
- 5.1.2 Therefore, measures outlined in this section are recommended in order to ensure that the risk of surface water flooding to the post-development site shall not be increased.
- 5.1.3 It is assumed that the surface water drainage outside of the site boundary will be subject to the relevant landowner's regular drainage maintenance schedule.
- 5.1.4 The external ground levels will be designed across the site to fall away from the proposed buildings and ensure that the creation of low points is avoided and that the flood water is safely routed away from the buildings on site.
- 5.1.5 Providing the above measures are implemented, the flooding risk to the development site from surface water is considered low post development.
- 5.1.6 A detailed assessment of the proposed surface flows is carried out within the drainage strategy within section 6 of this report.

Surface Water Flooding from the site Mitigation

- 5.2.1 Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30-year storm event, and flood water generated from up to the critical 1 in 100-year plus climate change storm event shall be constrained within the areas on site so as not to cause damage to buildings, essential services or adjoining developments & services. The drainage will be designed according to Lancashire County Council Guidance, for detail refer to point 6.
- 5.2.2 To minimise localised flooding within the site, the drainage design should ensure that gullies, drainage channels and drains are all suitably sized to accommodate peak storm flows. Also, all inlet features should have suitably sized sumps to catch silt, and should be subject to a documented routine maintenance and cleansing regime.
- 5.2.3 For any sustainable drainage systems employed in the development, an appropriate management and maintenance plan for the sustainable drainage system for the lifetime of the development should be submitted (i.e. inspections, regular maintenance).

- 5.2.4 Assuming that the proposed drainage system is designed to provide adequate capacity, and that the private drains will be maintained, it can be assumed risk of flood from blockage or overloading is minimal.

6.0 Drainage Strategy

6.1 Proposed Foul Water Drainage

Retained Sports Hall foul water drainage

- 6.1.1 The current proposal is to retain the existing foul water drainage, which runs from the retained Sports Hall in the North, to the South of the site.
- 6.1.2 As the proposed Teaching Block footprint is located above the existing foul water drainage between manholes EXF20 to EXF23, a diversion has been proposed outside the new building footprint.
- 6.1.3 All branches from demolished buildings can be grouted or removed.

Proposed Teaching Block

- 6.1.4 The proposed Teaching Block finished floor level is set at 225mAOD, which is too low to achieve a gravity connection to the existing private drainage. Foul water from the new building will be pumped to EXF20, which is a private manhole.
- 6.1.5 Based on Building Regulations Part H, 24-hour storage should be provided for the foul water pumping station. A 24-hour storage volume requirement of 75m³ has been calculated, based on the British Water Code of Practise – ‘Flows and Loads’, using 90 l/p/d (litres per person per day) and 834 people (750 children plus 84 staff). The pump station should be approved by Building Control. The peak rate will be calculated when discharge units are provided.
- 6.1.6 United Utilities should be informed about foul water flow rate. As the existing building is to be demolished it is likely that the proposed peak foul water flow will be similar to the existing.
- 6.1.7 A Section 106 agreement with United Utilities will be required for the new indirect connection to the public sewer.
- 6.1.8 The Proposed Drainage Strategy is enclosed in *Appendix G*.

6.2 Proposed Surface Water Drainage

Retained Sports Hall surface water drainage

- 6.2.1 The existing surface water drainage from Sports Hall and adjacent externals discharge to the River Spodden.

6.2.2 As the proposed building footprint is located above part of the existing surface water drainage between manhole EXS34 and EXS11, a diversion has been proposed outside the new Teaching Block footprint. The diversion is not significant and the existing surface water drainage for Sports Hall is not changing. Therefore, the surface water from Sports hall and adjacent unchanged externals will be discharged as existing without any restriction. The areas which will be retained are shown on the existing catchment plan enclosed in *Appendix G*.

Access road

There are no proposed works to the access road; the footway will be widened by 0.8m and raised. However, the road falls towards the junction with Hall Street, and the existing drainage within the access road will not change, Therefore, the existing road drainage will be retained and surface water will be discharged without restriction.

Proposed Teaching block, sport field &externals

6.2.3 Any new development site drainage should be designed in accordance with current best practice to provide adequate capacity not to flood for the critical 1 in 30-year storm event, and flood water generated for up to the critical 1 in 100-year plus climate change storm event shall be constrained within the areas on site, so as not to cause damage to buildings, essential services or adjoining developments and services.

6.2.4 In following the standard hierarchy of drainage solutions, consideration should firstly be given to the discharge of surface water runoff by sustainable methods such as infiltration.

Infiltration

6.2.5 The borehole records indicate that the site is underlain by a sandy clay layer. However, there is a high groundwater level and the presence of PAH within the ground. Therefore, it will not be viable to discharge via infiltration.

Watercourse

6.2.6 Part of the existing site discharges currently to River Spodden (main river) which is located near the North-East boundary.

6.2.7 The proposed development will also discharge surface water to River Spodden, using the existing connection.

Surface Water Sewer

6.2.8 There is no surface water sewer adjacent to the site.

Combined Water Sewer

- 6.2.9 As the drainage hierarchy should be followed and the connection to River Spodden is achievable, connection to the combined public sewer is not considered.
- 6.2.10 Table 4 summarises the options for surface water disposal.

Table 4: Surface Water Disposal

Surface Water Disposal	Potential	Description
Infiltration	X	The ground underlying the site is not suitable for infiltration.
Watercourse	✓	Using the existing connection to River Spodden is feasible.
Surface Water Public Sewer	X	There is no surface water drainage sewer adjacent to the development.
Combined Public Sewer	X	As using the existing connection to watercourse can be achieved connection to combined public sewer has not been considered.

- 6.2.11 In February 2016, the Environment Agency released updated climate change allowances for peak rainfall intensities which should be applied to new developments. Table 5 demonstrates the climate change allowances with central and upper end allowances being considered.
- 6.2.12 Based on the nature of the development, a lifespan in excess of 60 years is anticipated. Therefore, the potential climate change allowance for 2070-2115 ranges between 20% for the central allowance and 40% for the upper end allowance. The design will take into account the allowance of 40%.

Table 5: (Extract Environment Agency Guidance) Peak Rainfall Intensity Allowance in small and urban catchments

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

- 6.2.13 The existing site is Brownfield: based on North-West SuDs Pro-forma Guidance for a previous developed site which indicates that where the existing drainage can't be reused entirely, and new surface water drainage is proposed, surface water flows from the development should be restricted to greenfield rates.
- 6.2.14 The existing surface water drainage system described in point 2.3 shows that surface water from the existing site discharges to the River Spodden and Millers Gutter. It has been proposed that the new drainage system, where new development is proposed, will discharge to the River Spodden at greenfield rates as described below.
- 6.2.15 The site has been divided into areas:
- Existing Sports Hall with adjacent existing externals which will not be changed and discharge without restriction
 - The new development will discharge surface water at greenfield rates to the River Spodden
 - No change to the access road, small changes to footway therefore no changes to the existing drainage.
- 6.2.16 As per LLFA guidance for developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

Proposed discharge rates are summarised in Table 6

Table 6. Proposed rates

	New development	Existing Sport Hall
Area ha	1.425	0.160
	Greenfield	As existing, free discharge
1in1	16.6	11.30
1in30	32.4	30.2
1in 100	39.7	37.20
1 in 100+40%CC	39.7*A	45.60*B
Qbar	19.08	N/A

Attenuation	permeable pavement subbase+ attenuation tank + raingarden+ swale	N/A
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*A-240minutes critical storm

*B 15minutes critical storm

- 6.2.17 It is proposed to reuse the existing 225mm connection to the River Spodden. The existing drain capacity (225mm dia 1:46.6 slope) is 76.4 l/s. As the critical storm duration for the site differs for the proposed development and existing Sports Hall, the flows from table 6 are not combined, as these flows would not occur at the same time. The existing 225mm has been modelled in Microdrainage as 1.009, which confirms that the existing drain has sufficient capacity for incoming flows.
- 6.2.18 A complex flow control will be used to limit the flow from the new development. The surface water model has been carried out and an approx. attenuation volume established. The required attenuation volume is subject to change during the detailed design. Currently, attenuation is provided within the subbase of permeable pavements within car parks, swales, rain gardens and attenuation tank.
- 6.2.19 The LLFA has been contacted for advice previously, however, no advice was received.
- 6.2.20 The Environmental Agency has been contacted however a response has not been received at the time of writing the report.

6.3 Pollution control

- 6.3.1 Surface water run-off from hard paved areas at risk of contamination should receive water quality treatment. School car park and external surfaces are considered low hazard in terms of contamination. Figure 8 illustrates the pollution hazard indices for different land use classifications from The CIRIA SuDS Manual C753 (2015).

Figure 8: Pollution Hazard indices for land use classification (Table 26.2 the CIRIA SuDS manual 2015)

TABLE 26.2 Pollution hazard indices for different land use classifications				
Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydro-carbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/ industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (eg cul de sacs, homezones and general access roads) and non-residential car parking with infrequent change (eg schools, offices) ie < 300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (eg hospitals, retail), all roads except low traffic roads and trunk roads/motorways ¹	Medium	0.7	0.6	0.7
Sites with heavy pollution (eg haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways ¹	High	0.8 ²	0.8 ²	0.9 ²

Figure 9: Indicative SuDS mitigation indices (Table 26.3 the CIRIA SuDS manual 2015)

TABLE 26.3 Indicative SuDS mitigation indices for discharges to surface waters			
Type of SuDS component	Mitigation indices ¹		
	TSS	Metals	Hydrocarbons
Filter strip	0.4	0.4	0.5
Filter drain	0.4 ²	0.4	0.4
Swale	0.5	0.6	0.6
Bioretention system	0.8	0.8	0.8
Permeable pavement	0.7	0.6	0.7
Detention basin	0.5	0.5	0.6
Pond ⁴	0.7 ³	0.7	0.5
Wetland	0.8 ³	0.8	0.8
Proprietary treatment systems ^{5,6}	These must demonstrate that they can address each of the contaminant types to acceptable levels for frequent events up to approximately the 1 in 1 year return period event, for inflow concentrations relevant to the contributing drainage area.		

Notes

- 1 SuDS components only deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters.
- 2 Filter drains can remove coarse sediments, but their use for this purpose will have significant implications with respect to maintenance requirements, and this should be taken into account in the design and Maintenance Plan.
- 3 Ponds and wetlands can remove coarse sediments, but their use for this purpose will have significant implications with respect to the maintenance requirements and amenity value of the system. Sediment should normally be removed upstream, unless they are specifically designed to retain sediment in a separate part of the component, where it cannot easily migrate to the main body of water.
- 4 Where a wetland is not specifically designed to provide significantly enhanced treatment, it should be considered as having the same mitigation indices as a pond.
- 5 See Chapter 14 for approaches to demonstrate product performance. A British Water/Environment Agency assessment code of practice is currently under development that will allow manufacturers to complete an agreed test protocol for systems intended to treat contaminated surface water runoff. Full details can be found at: <http://tinyurl.com/qf7yuj7>
- 6 SEPA only considers proprietary treatment systems as appropriate in exceptional circumstances where other types of SuDS component are not practicable. Proprietary treatment systems may also be considered appropriate for existing sites that are causing pollution where there is a requirement to retrofit treatment. SEPA (2014) also provides a flowchart with a summary of checks on suitability of a proprietary system.

- 6.3.2 The selection of treatment should ensure that the SuDS mitigation component index (Figure 9) exceeds the pollution hazard index (Figure 8). As it is a school car park, 0.5 (hazard index) should be used.
- 6.3.3 The permeable pavement solution is proposed for the car park and parking bays. The proposed extent of permeable pavement is shown on the external surface plan included within *Appendix G*.
- 6.3.4 A Swale is proposed near the eastern boundary, as the level slopes towards the swale, part of the loop road will discharge to the swale. The water will filtrate and will be captured by the perforated pipe located on the bottom of the swale.
- 6.3.5 There are a few rain gardens, which will reduce the volume of rainwater running off into drains from impervious areas and treat low level pollution. As there is a high groundwater level, the filter drain in the bottom of the rain gardens should be wrapped in impermeable membrane, in order to prevent groundwater from getting into the drainage system.
- 6.3.6 A green roof system has been proposed on the new building roof. Green roofs can help to reduce both the pollution and surface runoff entering the drainage system; the extent of green roof is shown on the roof plan included in *Appendix A*.

7.0 Maintenance

7.1 Introduction

- 7.1.1 This section is intended to give an overview of the operation and maintenance requirements for the drainage features included within the drainage strategy and to provide typical details. Where proprietary products are specified, the manufacturer's instructions and recommendations should be followed in priority to this document unless specifically noted otherwise due to project constraints.
- 7.1.2 The recommended operations and frequencies are typical only and should be more frequent initially to ensure that there are no unforeseen issues with the operation and then adjusted to suit the site requirements.

7.2 Components

- 7.2.1 The following components have been included within the drainage design for the proposed development:
- Inspection, Manhole and Catchpit Chambers
 - Pipes
 - Drainage Channels and Gullies
 - Attenuation Tank.
 - Flow Control Chamber
 - Filter drains for raingardens
 - Permeable surface(asphalt)
 - Green Roofs- maintenance regime to be confirmed by Architect
 - Swales
 - Foul water pump station
- 7.2.2 A suitable maintenance strategy should be adopted to ensure the drainage network is cleaned regularly and the routine maintenance and cleansing regime should be documented.
- 7.2.3 It is assumed that the maintenance of the drainage network will be the responsibility of an on-site facilities management team.
- 7.2.4 A copy of the final construction drainage layout should be provided in the final Operations and Maintenance Manual.
- 7.2.5 It is recommended that the drainage system is inspected as a minimum twice a year, with the system also being inspected after any major storm event.
- 7.2.6 Significant sediment deposition is likely in areas used for storage, so a post clean-up operation may be required including the removal of litter, vegetation, sewerage debris and larger objects.

- 7.2.7 Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.
- 7.2.8 During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter.
- 7.2.9 Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

7.3 Inspection, Manhole and Catchpit Chambers

- 7.3.1 Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.
- 7.3.2 The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access.

7.4 Pipes

- 7.4.1 Pipes are proprietary products and the materials can vary across the site and as such where used the manufacture's recommendations should be followed. Regardless of the product used the pipes will be fully compliant with the Curtins drainage specification.
- 7.4.2 Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.
- 7.4.3 Access for maintenance is provided through access chambers and manholes.
- 7.4.4 Regular inspection and maintenance is important to identify areas which may have been obstructed/clogged and may not be draining correctly thus exposing the development to a greater level of flood risk.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection should be provided as post construction CCTV survey.	N/A
Regular maintenance\ inspection	Inspect for evidence of poor operation via water level in chambers. If required, take remedial action.	3-monthly, 48 hours after large storms.
	Check and remove large vegetation growth near pipe runs.	Monthly or as required
Remedial Action	Rod through poorly performing runs as initial remediation.	As required.
	If continued poor performance jet and CCTV survey poorly performing runs.	As required.
	Seek advice as to remediation techniques suitable for the type of performance issue and location.	As required If above does not improve performance.

7.5 Drainage Channels and Gullies

7.5.1 Channels and gullies should be inspected and cleaned in accordance with the manufacturer’s details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

- 7.5.2 Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating.
- 7.5.3 Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the car park channels.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection including channel outlet boxes.	Half yearly and after large storms.
Regular maintenance\ inspection	Litter and debris removal	Monthly or as required.
	Check and remove large vegetation growth near channel runs.	Monthly or as required
	Inspect for evidence of poor operation and/or weed growth. If required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Silt can also be caused by adjacent landscaping areas which should be reprofiled to	3-monthly, 48 hours after large storms.

	provide a flat area or berm adjacent to the paving.	
Remedial Action	Inspect access/outlet boxes and rod through poorly performing channels and outlets as initial remediation.	As required.

7.6 Attenuation Tanks

- 7.6.1 The manufacturer’s recommendations should be taken into consideration.
- 7.6.2 Access for maintenance has been provided by an access shaft located on the tank and from the manhole chambers downstream of the tank.
- 7.6.3 Regular inspection and maintenance are important for the effective operation of attenuation tanks as designed. As the feature is buried, a regular inspection regime is very important to ensure the correct functionality of the surface water drainage network.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets, outlets and overflows for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
Regular maintenance\ inspection	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly.
	Debris removal from catchment surface (where	Monthly

	may cause risks to performance).	
	Remove sediment from pre-treatment structures.	Annually (or as required after heavy rainfall events)
Remedial Actions	Repair/rehabilitation of inlets, outlets and overflows.	As required.

7.7 Flow Control Units

7.7.1 The flow control unit is intended for flood control and flow restriction.

7.7.2 The manufacturer's recommendations should be taken into consideration.

7.7.3 Access for maintenance has been provided by locating within manhole chambers.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
Regular maintenance\ inspection	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly.
	Debris removal from catchment surface (where may cause risks to performance).	Monthly

	Remove sediment from pre-treatment structures and flow control chambers.	Annually (or as required after heavy rainfall events)
Remedial Actions	Repair/rehabilitation of inlets.	As required.

7.8 Filter drains for rain gardens

- 7.8.1 The filter drains are intended for surface water conveyance, water quality and attenuation storage features.
- 7.8.2 Access for maintenance has been provided through access chambers and rodding points.
- 7.8.3 Sediment\material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Initial Inspection including incoming channel outlet boxes.	Half yearly and after large storms.
Regular maintenance\ inspection	Litter and debris removal	Monthly or as required
	Remove sediment from pre-treatment structures.	Monthly or as required

Remedial Action	Replace geotextiles and clean and replace filter media, if clogging occurs. Terram 1000 typical design life is 25 years.	As required.
	Excavate trench walls to expose clean soils if infiltration performance reduces to unacceptable levels.	As required.

7.9 Permeable pavements

7.9.1 The pavement should be inspected regularly for clogging, litter, weeds and water ponding, preferably during and after heavy rainfall to check effective operation. Permeable pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. The SuDS Manual indicates that sweeping once per year is sufficient for most sites, however the sweeping frequency should be adjusted to suit site specific conditions and should also be informed by annual inspection reports.

7.9.2 The below table outlines the proposed operation and maintenance regime for permeable pavements. This is adapted from The SuDS Manual (C753).

Maintenance Schedule	Required Action	Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall or reduced frequency as required, based on site- specific observations of clogging - pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediments
Occasional maintenance	Stabilise and mow contributing and advancement areas	As required

	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than spraying	As required –once per year on less frequently used pavements
Remedial actions	Remediate any landscaping which through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper structure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth- if required, take remedial action	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

7.10 Swales

7.10.1 Swales are shallow, flat bottomed, vegetated open channels designed to convey, treat and often attenuate surface water runoff. Swales will require ongoing regular maintenance to ensure continuing operation to design performance standards, particularly for providing treatment.

- 7.10.2 Maintenance of swales is relatively straightforward for landscape contractors, and typically there should only be a small amount of extra work (if any) required for a swale over and above what is necessary for standard open space.
- 7.10.3 Litter and debris removal should be undertaken as part of general landscape maintenance for the site and before any other SuDS management task. All litter should be removed from the site.
- 7.10.4 The major maintenance requirement for swales is usually mowing. Mowing should ideally retain grass lengths of 75-150 mm across the main "treatment" surface to assist in filtering pollutants and retaining sediments and to reduce the risk of flattening during runoff events. Grass clippings should be disposed of off-site or outside the area of the swale to remove nutrients and pollutants.
- 7.10.5 The below table shows the proposed operation and maintenance regime for swales. This is adapted from The SuDS Manual (C753).

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation; record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required

7.11 Pumping Station

- 7.11.1 The pumping station is intended for foul drainage unable to discharge via gravity.
- 7.11.2 The manufacturer's recommendations should be taken into consideration.
- 7.11.3 Access for maintenance should be provided by locating an access shaft within the pumping chamber.

Maintenance Schedule	Required Action	Frequency
Monitoring (to be undertaken more regularly within the first year of operation and adjusted as required).	Inspect inlets for blockages, and clear if required. If faults persist jetting and CCTV survey may be required.	Monthly and after large storms.
Regular maintenance\ inspection	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then six monthly.
	Debris removal from catchment surface (where may cause risks to performance).	Monthly
	Remove sediment from pre-treatment structures and flow control chambers.	Annually (or as required after heavy rainfall events)

Appendix A

Proposed Site Layout

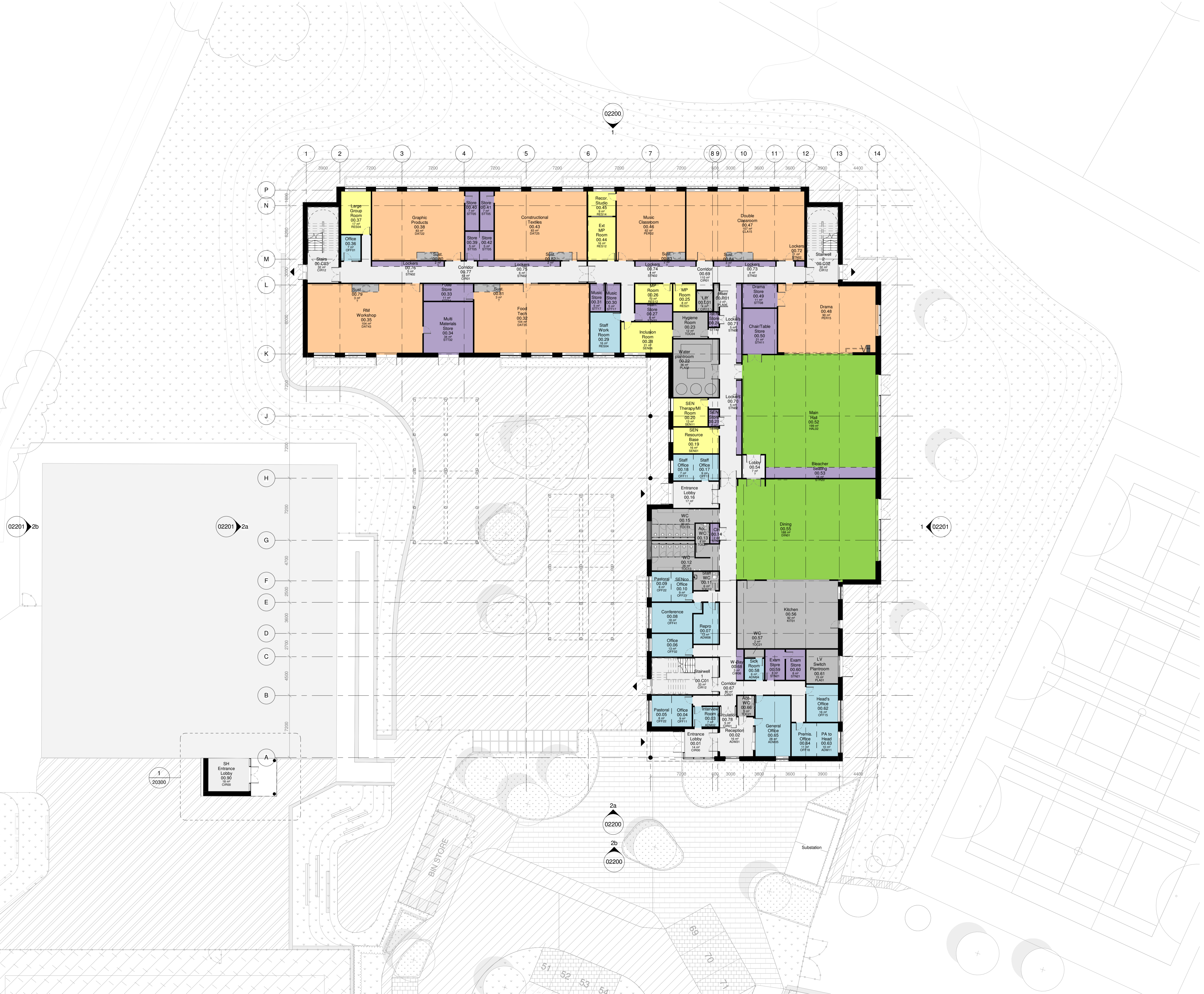
Roof Plan

Ground Floor plan

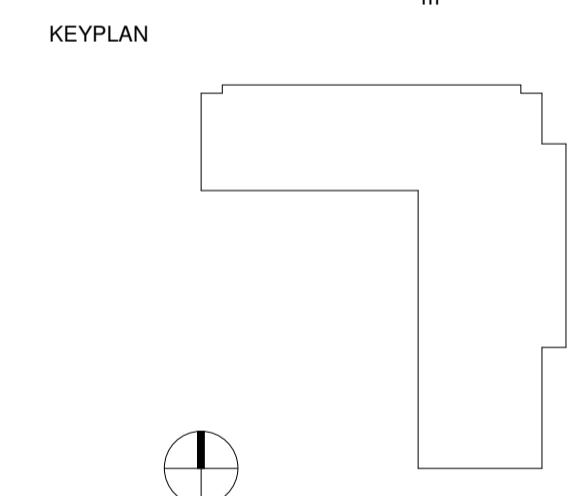
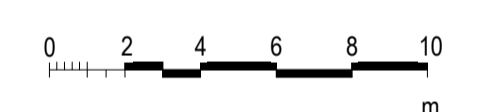
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P01	16/04/2021	Issued for 'Planning'
P02	27/04/2021	Issued for 'Planning'



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77 Parkway Camden Town London NW1 7PU
T: +44 (0)20 7504 1700 E: enquiries@sheppardrobson.com

PROJECT
Whitworth Community High School

SCALE@A1	DATE	ORIGINATOR	CHECKED	AUTHORISED
1 : 200	27/04/2021	GM	HI	JJ

General Arrangement Ground Floor Plan

STATUS	PURPOSE FOR ISSUE	SR NO.
S2	Planning	6711
DRAWING NO.		REV.
WCHS-SRA-XX-00-DR-A-02100		P02

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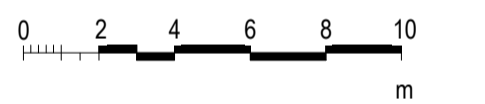
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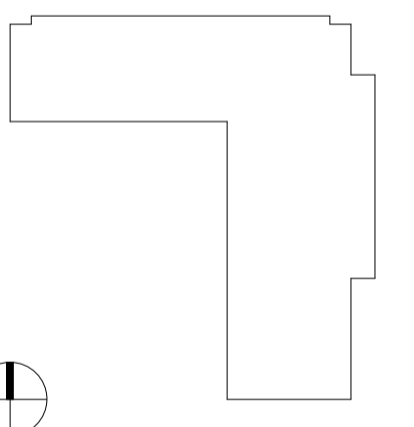
Roof Types Legend

- Type 1
Extensive green roof (PV panels will sit on top of this type)
- Type 2
Inverted roof with concrete paving slabs
- Type 3
Single ply warm deck roof (PV panels will sit on top of this type)
- Type 4
Inverted roof with gravel ballast
- Type 5
Single ply roof membrane to lift overrun
- Rainwater outlet - TBC
- PV Panels - TBC

REV.	DATE	AMENDMENT
P01	16/04/2021	Issued for 'Planning'
P02	24/04/2021	Issued for 'Planning'
P03	28/04/2021	Issued for 'Planning'



KEYPLAN



CLIENT



SHEPPARD ROBSON

77 Parkway Camden Town London NW1 7PU
T: +44 (0)20 7504 1700 E: enquiries@sheppardrobson.com

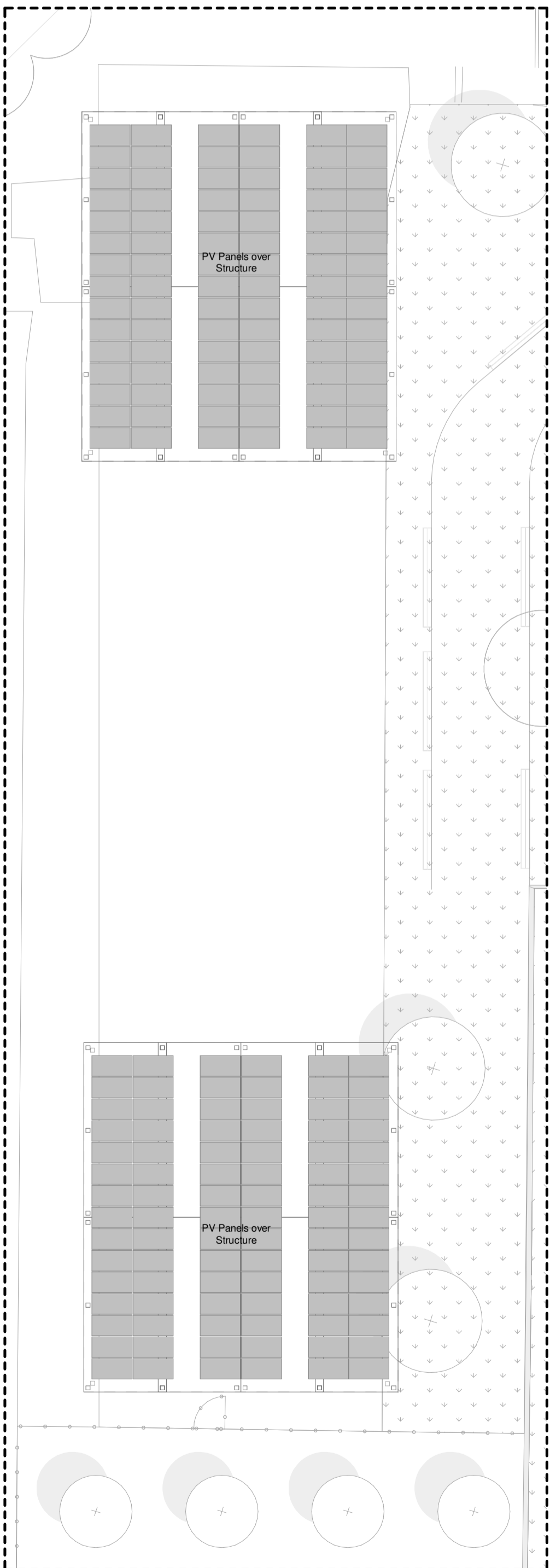
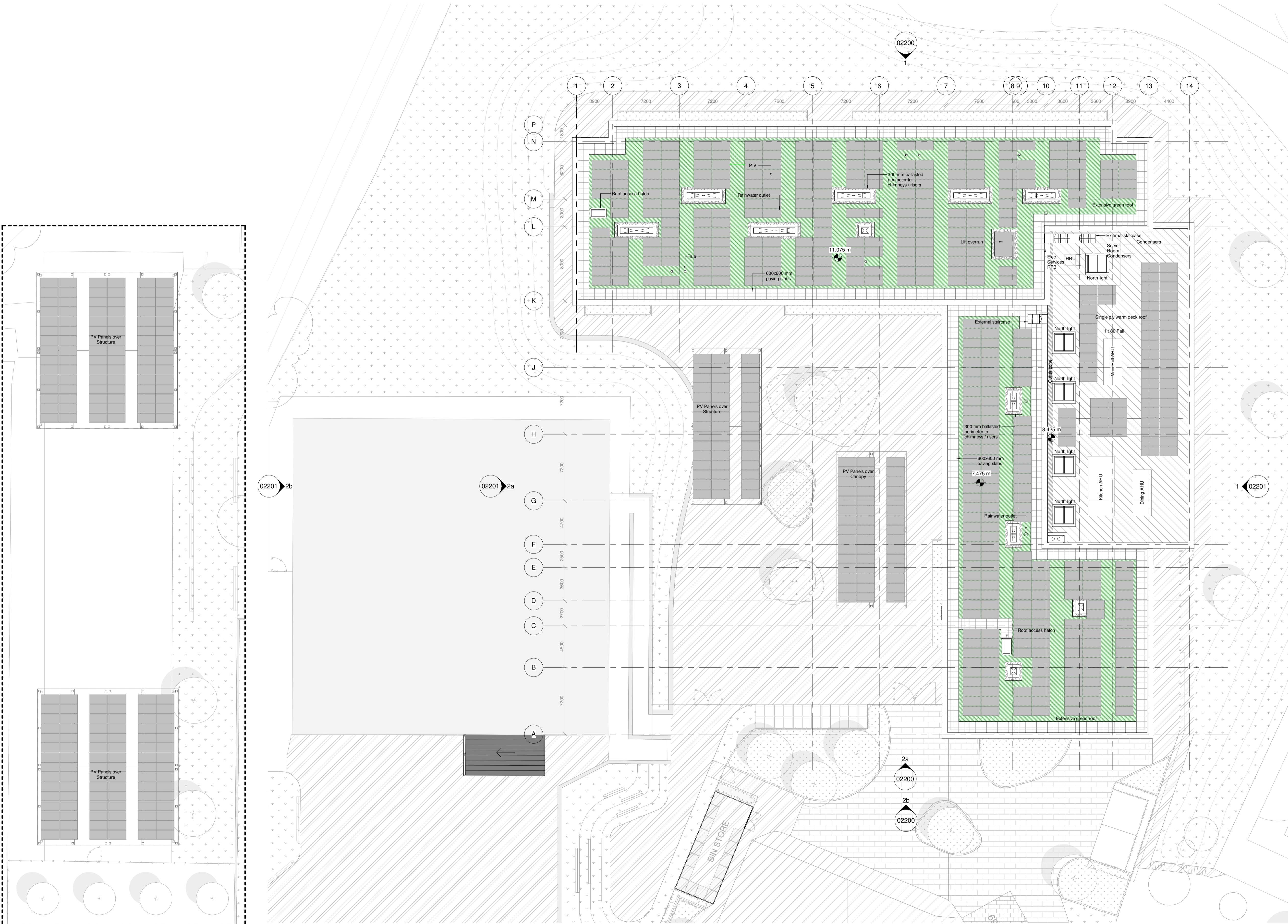
PROJECT
Whitworth Community High School

SCALE@A1	DATE	ORIGINATOR	CHECKED	AUTHORISED
1 : 200	28/04/2021	GM	HI	JJ

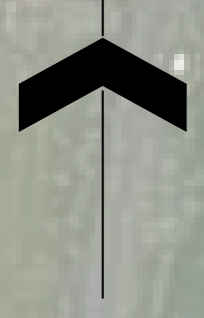
**General Arrangement
Roof Plan**

Stage 2/3

STATUS	PURPOSE FOR ISSUE	SR NO.
S2	Planning	6711
DRAWING NO.		REV.
WCHS-SRA-XX-RF-DR-A-02103		P03



Additional PVs
please refer to WHS-ALA-00-XX-DR-L-0001



Playing fields as existing

TEACHING BLOCK

EXISTING SPORTS HALL
RETAINED

Canopy

Covered Teaching Area and
External Dining.
PV located on roof

MUGAs to remain as
existing and made good
following construction

- Proposed Seating Wall
500-600mm Height with 1:3 bank behind
- Proposed structure to house PV.
Exact locations to be determined.
Detail by others
- Existing Ramp and Stairs Retained
- Covered Cycle parking - 28 Cycle Spaces
- Existing Surfaces and
retained walls as existing
- Proposed Sports Hall Entrance
- Terraced Seating in grass bank
- Bin Store (suitable for 16 1100L bins)
- Performance Space Amphitheatre
with terraced seating in bank
- Proposed structure to house PV.
Exact locations to be determined.
Detail by others
- Proposed Retaining Wall
- MUGAs to remain as existing
- Proposed structure to house PV.
Exact locations to be determined.
Detail by others

2Nr Minibus Bays

Proposed Grass Pitches
2x 5v5 football pitches
43m x 33m each

Entrance Plaza

2 Nr Substations
4 x 4 x 2.4m height

4Nr Visitor Cycle Spaces

4nr EVC Spaces

Staff Car Park:
Total 71Nr Car Parking Spaces
Including:
7Nr Accessible bays
4Nr EVC Spaces

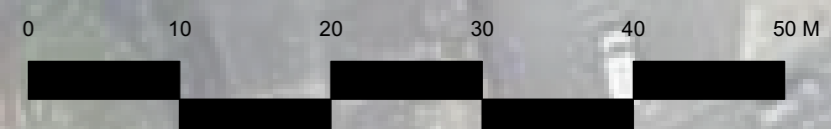
3Nr Motorcycle Bays

New tree planting within
existing grass areas

Pedestrian entrance into school
3m width

Existing access roadway to remain as existing

2m Wide Raised Existing Footpath with
high containment kerb and fencing



Notes

1. Do not scale from this drawing
2. To be read in conjunction with Project Risk Register REF: XXX
3. To be read in conjunction with all other Landscape Architect's drawings

RESIDUAL PROJECT RISKS

ID	RISK	MITIGATION	Date Mitigated

KEY

<p>Site</p> <ul style="list-style-type: none"> Planning Application Boundary Existing Building Proposed Building Existing Tree Existing Tree to be removed <p>Planting</p> <ul style="list-style-type: none"> Proposed Tree Refer to Planting Plan Grass Seed Refer to Planting Plan Amenity Planting Refer to Planting Plan Swale Meadow Planting Refer to Planting Plan Hedge Planting Refer to Planting Plan 	<p>Paving</p> <ul style="list-style-type: none"> Pedestrian Macadam To Engineer's Specification Vehicular Macadam To Engineer's Specification Concrete Block Paving Specification TBC MUGA Permeable Surface Specification TBC <p>Furniture</p> <ul style="list-style-type: none"> Covered Cycle Spaces 28 secure cycle parking spaces Seating Bench 600 x 2000mm Specification TBC Covered Dining Canopy Specification TBC Cycle Stands 4 Visitor Spaces located on Entrance Plaza 	<p>Fencing and Structures</p> <ul style="list-style-type: none"> Existing Fencing Retained Proposed Fencing Refer to Fencing General Arrangement for details Proposed Gates Refer to Fencing General Arrangement for details Retaining Wall Specification TBC Structure to house PV Specification TBC
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DATE	REV	DESCRIPTION OF REVISION	DRAWN BY	APPROVED BY
26.04.2021	P03	Issued for Planning	AEK	SB
25/03/2021	P02	Updated to latest road layout	HS	SB
05/03/2021	P01	Issued for Draft CP's	HS	SB

REVISIONS

STATUS

S2 - FOR PLANNING

ares
LANDSCAPE ARCHITECTS

Ares Landscape Architects LTD
Caticrossher, 51 Eyre Lane, Sheffield S1 4RB
t: 0114 276 2000
e: hello@aresdesign.co.uk
w: ares.eu.com

CLIENT: **Wates**

PROJECT TITLE: **Whitworth Community High School**

DRAWING TITLE: **Landscape Illustrative Masterplan**

DRAWING SCALE: 1:500	DRAWN BY: HS	DRAWN DATE: 15.02.2021
PAPER SIZE: A1	APPROVED BY: SB	ALA PROJECT CODE: ALA663

DRAWING NUMBER: **WHS-ALA-00-XX-DR-L-0001** STATUS: **S2** REVISION: **P03**

Appendix B

United Utilities Public Sewer Records

Groundsure maps

Ruxandra Ekman

1
Marsden St,
Manchester,
M2 1HW

FAO:

How to contact us:

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: 13516
Our Ref: UUPS-ORD-187403
Date: 26/08/2020**

Dear Sirs

Location: 2 LLOYD STREET, WHITWORTH, ROCHDALE, OL12 8AA

I acknowledge with thanks your request dated 19/08/2020 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and effect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

